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**World Resources Institute Comments on the Draft Total Maximum Daily Load (TMDL)
for the Chesapeake Bay**

The World Resources Institute welcomes the opportunity to provide comments on the Draft TMDL for the Chesapeake Bay. WRI has long been active in developing water quality trading policy and programs and takes particular interest in the trading and offsets provisions of the draft TMDL. Our comments also address specific questions on the proposed trading and offsets program posed by EPA in an August 6, 2010 Discussion Draft Memo titled *Common Performance Standards for and Elements of Offset and Trading Provisions in the Chesapeake Bay Watershed*.

The following comments and recommendations first address certain aspects of the TMDL and then respond specifically to the questions posed by EPA in the August 6 memo. However, addressing some of the questions posed in the August memo will require a great deal of work and discussion by a range of stakeholders and WRI does not believe that an adequate discussion is possible within the context of TMDL comments. WRI recommends that EPA seek further input on these questions in an ongoing formal process to develop trading program policy.

1. A Robust Nutrient Trading Program That Allows Credit Transactions Across Political Boundaries and Hydrological Basins Will be Needed if the TMDL Is to Be Successfully Implemented

Numerous elements of the TMDL and the state Watershed Implementation Plans explicitly require the availability of nutrient offset credits. Chief among them are growth accommodation, enabling backstop provisions, and providing a cost-effective alternative for certain requirements.

Growth accommodation—The states had the choice of having the TMDL set aside specific nitrogen and phosphorus allocation for future growth, or to provide no allocation and rely on a nutrient trading program to provide credits to offset loads from future growth. None of the states (with one partial exception) chose to have a specific allocation set aside for future growth. All chose instead to rely on an offsets program. This is not just a future issue about how to maintain the cap once achieved; the demand for offset credits exists now. Proposed new and expanded discharges have no allocation under the TMDL and WIPs. This demand exists now and will only increase in the face of growth.

Backstop Provisions—The backstop provisions described in Section 8 of the TMDL are of necessity restricted to potential actions that EPA has statutory or regulatory authority to take. Hence they are directed solely at point sources that are, or could be, permitted under the Clean Water Act—municipal and industrial wastewater treatment plants, stormwater dischargers, and animal feeding operations. If WIPs “do not achieve the target allocations or do not provide adequate reasonable assurance” then the backstop action will be to lower the wasteload allocations for point sources to the degree necessary to compensate for the inability to sufficiently reduce nonpoint source loads.

Lowering allocations for existing wastewater treatment plants could have many serious adverse consequences, chief among them additional constraints on growth and development. The economic impact of sewer moratoria could be severe. Acquiring offset credits would be a way to avoid or minimize this impact, hence this backstop measure would result in additional demand for credits. If credit supplies were nonexistent or inadequate, this backstop measure could be very difficult to actually implement, and if implemented, could have severe social and economic impacts.

The proposed backstop measure for stormwater is to require additional retrofits of existing impervious surface by currently permitted stormwater systems (MS4) and issuing NPDES stormwater permits to jurisdictions not currently permitted. It is widely known that the stormwater components of the Bay restoration efforts will be extraordinarily expensive and might not even be affordable. WRI believes that giving stormwater utilities the ability to meet their TMDL and WIP requirements at least in part through the purchase of nutrient credits will

be critical for helping to make the stormwater requirements affordable. EPA should carefully consider the affordability of this backstop measure and recognize that a viable trading program and an adequate supply of credits might be critical to making it implementable.

Lowering Cost and Improving Affordability—The financial achievability of Bay restoration is of great concern to virtually all stakeholders—EPA, the states, regulated dischargers, nonpoint sources, and the public. Any measure that can increase cost effectiveness must be used if at all possible. Water quality trading is one such measure. It is currently being used in state trading programs to reduce costs for wastewater treatment plants to meet wasteload allocations. Greater use could significantly reduce wastewater treatment plant costs, especially in Pennsylvania and West Virginia. Even greater potential for cost savings exists in the stormwater sector. It is clear that a robust and reliable nutrient trading program will be a critical component of successful implementation of the TMDL and restoration of the Bay. It is also clear to WRI that the benefits of nutrient trading can only be fully realized if the trading program is an interstate one, and not merely four separate state trading programs. WRI intends to provide additional analyses over the next few months to help inform EPA’s development of the trading program as addressed in Appendix S.

2. The Backstop Provisions for Stormwater Should not Be Prescriptive

Table 8-6 of the TMDL indicates that the backstop provision for stormwater will be “MS4: 50% of urban MS4 lands meet aggressive performance standard through retrofit/ redevelopment.” This is somewhat self-contradictory as it first asserts that a performance standard will be applied but then stipulates specific practices. In essence this is a practice-based requirement. On the surface, this would restrict flexibility for the MS4 by precluding any measures other than retrofits, such as the purchase of nutrient credits on the trading market. This would unnecessarily increase costs and again, raise the affordability issue.

WRI recommends that the backstop provision be revised to set performance standards and provide MSs as much flexibility as possible on how to meet the standards.

3. Some Backstop Measures Could Make Things Worse

The main backstop measure that EPA has at its disposal is the lowering of wasteload allocations for wastewater treatment plants. The maximum application of this measure would be to reduce the annual load limit and treatment requirement to a load based on existing flow and the limit of technology for nutrient removal; in other words, capping the plant at existing loads treated to the maximum extent possible. This would mean that no further growth could be allowed in the plant’s service area because the plant could not meet its permit limits if such growth were to

occur. The only way to avoid this would be to ensure the existence of a viable nutrient trading program with an adequate supply of credits.

If such a trading program did not exist or credit supplies were inadequate, then the plant would have to impose a moratorium on new connections in its service area. While EPA may feel that this is an acceptable outcome for states that do not provide reasonable assurance for nonpoint source reductions, it should carefully consider the potential unintended consequence of driving new development to unsewered areas to be served by septic systems. The nitrogen load from a house on septic, even with a denitrifying septic system, would be substantially higher than if the house were connected to a municipal system treating wastewater to the limit of technology. Maryland's WIP states that "per household, the (nitrogen) load from new development on well and septic is almost five times as great as new loads from sewer areas." . Imposing sewer moratoria and driving development to currently undeveloped and unsewered areas could also endanger smart growth and encourage sprawl with its myriad adverse environmental and social impacts.

EPA should reevaluate this backstop provision in a more holistic manner and ascertain if in fact it would produce a net benefit. If not, lowering wasteload allocations should be dropped as a backstop measure.

4. Oyster Aquaculture Should Be a Means to Generate Nutrient Credits

The draft TMDL discusses the importance of filter feeders to the Bay, chief among them oysters and menhaden. The Draft Programmatic Environmental Impact Statement for Oyster Restoration in Chesapeake Bay concluded that native oyster aquaculture would be a critical component of restoring the ecosystem services provided by oysters, chiefly filtering of Bay water. WRI recommends that EPA, other relevant federal agencies, and the states assign high priority to oyster restoration and work to facilitate and expand oyster aquaculture in the Bay. The nutrient trading program could play a large role in this expansion and provide additional financial incentives to oyster growers. The nutrient mass in oysters grown in the Bay and then harvested can be directly measured and can form the basis for nutrient credits. Sale of these credits would increase the profit margins for oyster growers and provide an incentive to expand production, resulting in additional filtering capacity and multiple environmental benefits. There is no doubt that much work still needs to be done before oyster-based credits can be certified for the market. EPA should facilitate and support the necessary analysis and seek to bring oysters into the trading program as quickly as possible.

5. EPA Should Support and Facilitate Innovative Practices for Removing Nutrients from the Aquatic Environment

Oyster aquaculture is an example of an innovative practice for removing nutrients from surface waters. Other practices for doing this include constructing wetlands and harvesting algae (e.g. Algae Turf Scrubbing). In the long run, this type of “nutrient extraction” may prove to be of critical importance in restoring the Bay. It certainly has great potential. As with oyster aquaculture, the nutrient trading program can create financial incentives for these practices by providing a revenue stream from the sale of nutrient credits. EPA should support research and development of these practices and facilitate their introduction once they are shown to be beneficial and viable. EPA should also facilitate their entry into the nutrient trading market by establishing credit quantification requirements and procedures.

Comments based on EPA’s August 6, 2010 Memo

EPA’s August 6 memo entitled “Common Performance Standards for and Elements of Offset and Trading Provisions in the Chesapeake Bay Watershed” listed a number of “discussion questions” that EPA seeks public feedback on through the TMDL commenting process. Following are WRI responses to some of these questions.

Offset Definition

- 1. At this time, should EPA focus only on new or increased discharges of nitrogen and phosphorus, and sediment or also address existing loadings of nitrogen and phosphorus as well as additional markets/ecosystem services such as sediment, aquatic habitat/wetlands, carbon sequestration, and/or flood storage?*

EPA and the Environmental Market Team (EMT) should develop the trading program to accommodate both trading to meet wasteload allocation requirements and trading to offset new and expanding discharges. Trading for both purposes is needed now and delaying the development of program requirements for the first purpose might limit the availability of trading for some dischargers that want to reduce costs by buying credits instead of upgrading their treatment facilities. This would be particularly important for dischargers in basins with limited potential credit supply, dischargers that would benefit from the availability of interstate trading.

WRI does not see any benefit in delaying the development of the “trading to achieve” program. Developing the offsets program will of necessity address virtually all of the critical trading issues and necessary requirements, so there would actually be very little involved in extending the program for all trading purposes.

EPA and the EMT should focus on nutrient trading because of approaching deadlines for developing regulations to implement the TMDLs. The Principals' Staff Committee committed to establish all Bay TMDLs by December 31, 2010. Conceivably, entities could demand credits once the TMDLs and any subsequently revised NPDES permits are issued. The full interstate and interbasin nutrient trading program is needed as soon as possible and should be the first priority. Sediment trading has no precedent in the Bay watershed, and very little nationally. WRI believes that a great deal of work needs to be done to assess the viability and efficacy of sediment trading, work that will take some time to accomplish. This should not delay the development of the nutrient trading program.

EPA and the EMT should also consider other markets as possible. In particular, EPA and the EMT should consider both the hurdles to developing other markets for ecosystem services and the ways in which such markets could interact. In addition, EPA should consider whether to focus carbon sequestration efforts on regulated markets such as the Regional Greenhouse Gas Initiative (RGGI), voluntary markets such as the Chicago Climate Exchange, or both. A hurdle to working with RGGI is the limited opportunities it would provide to farmers in the Chesapeake Bay watershed because only New York, Delaware, and Maryland participate in the program. In all markets, EPA and the EMT should consider the potential for "stacking" credits.

2. *Should an offsets/trading program under which nonpoint sources may be required to acquire credits or offsets go forward, given that jurisdictions have the discretion to determine whether and how to subject nonpoint sources to regulatory and administrative requirements?*

Yes. If the possibility exists that states may impose such requirements on currently unregulated nonpoint sources, then the trading program should be designed to accommodate this. WRI does not see however, how this would affect the design of the trading program. It would simply create another category of credit purchasers and potentially increase credit demand. The need for special rules for this type of credit purchaser is not readily apparent.

In developing a program that would allow nonpoint sources to acquire credits, EPA does not infringe upon state's rights. States may allow or prohibit nonpoint sources from participating. By developing a program that allows the greatest number of participants possible, EPA simply opens the benefits of trading to all sectors that might benefit from it.

Baselines and Eligibility

5. *EPA's current assumption is that the wasteload allocation established by the TMDL is the baseline necessary to achieve water quality standards and offsets are required for new or increased discharges above the baseline. The jurisdictions could set a more stringent baseline. What are some potential bases for setting a more stringent baseline?*

Is it possible to ensure that nonpoint sources are included in whatever baseline is defined?

Nonpoint sources that seek to generate credits should be held to the criteria established in EPA's *Guide for Evaluation of Phase I Watershed Implementation Plans* of April 2, 2010 (Evaluation Guide). Consistency factor number 3 states that "EPA expects each Bay jurisdiction to address how its use of offsets would account for... attainment of the Bay TMDL or local water quality baseline by the generator of the offset" and number 6 adds that EPA will further expect states to demonstrate "...whether, as appropriate, the offset will offer a net improvement to the waterbody." Such requirements clearly make states prove that their nonpoint source baseline requirements meet the credit-generating entity's share of the applicable sector's load allocation.

6. *Can an offset/trade generated be based on modeling? What would happen if subsequent monitoring shows less than the anticipated reduction? Would additional reductions be required by the generator, the user, or both?*

Yes, for those BMPs and agricultural practices for which the Bay Program has established peer-reviewed long-term average efficiencies that have been incorporated into the watershed model. Credit generation methodologies based on BMPs or practices that do not have peer-reviewed established efficiencies should be addressed on a case-by-case basis by the regulatory agency charged with certifying the credits. Monitoring and/or uncertainty ratios should be required as necessary.

7. *Should sources in impaired segments be eligible to purchase credits or offsets produced in other parts of the Chesapeake Bay watershed as long as such offsets or trades would not result in exceedances of water quality standards in the purchaser's impaired segment or segments downstream?*

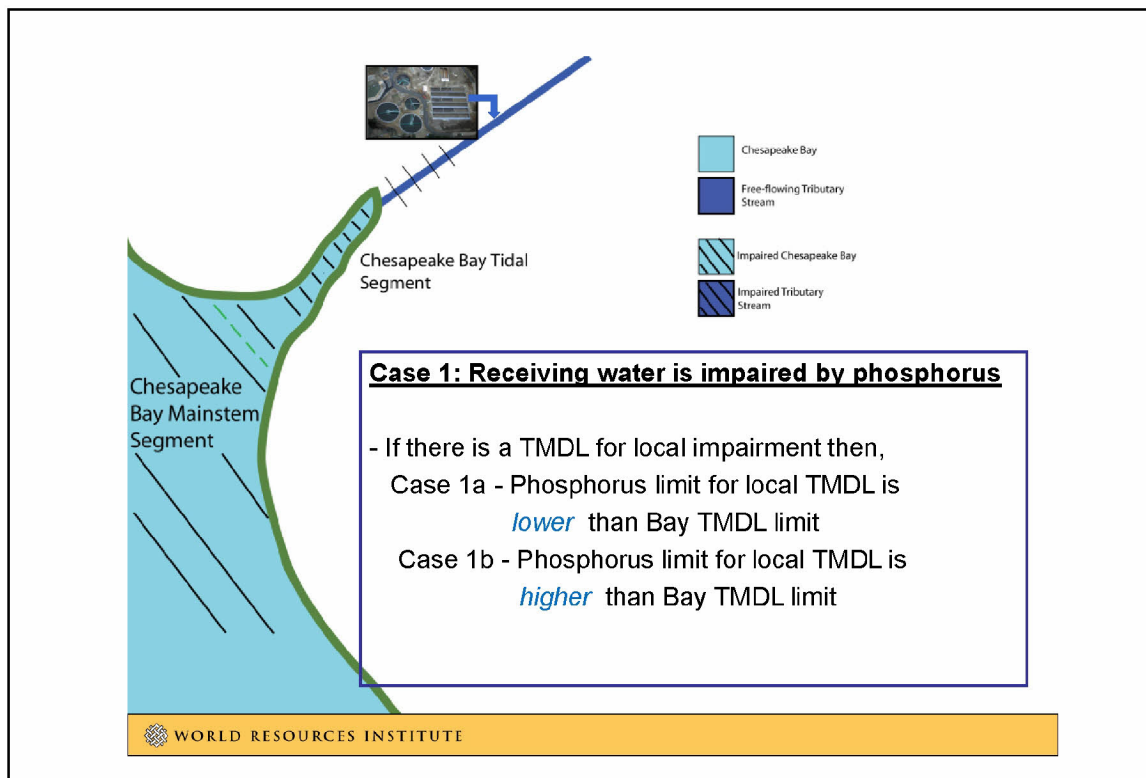
This question should more clearly define what is meant by "impaired segment." For the purpose of responding, WRI will assume that it refers to a non-tidal stream segment in the Bay watershed that is listed on the 303(d) list as impaired by nutrients. The answer to the question would depend on whether or not the discharger is an existing source or a new or expanding source and whether or not a TMDL has been implemented for the impaired segment and if so, whether the wasteload allocation for the point source is higher or lower than its Bay-related wasteload allocation.

Three cases can be defined:

- Case 1 – The point source is an existing discharger and has a wasteload allocation under the Bay TMDL. A TMDL has been implemented for the local impairment.
Case 1 can be divided into two subcases:
 - Case 1a - WLA for local TMDL is lower than Bay TMDL WLA
 - Case 1b - WLA for local TMDL is higher than Bay TMDL WLA

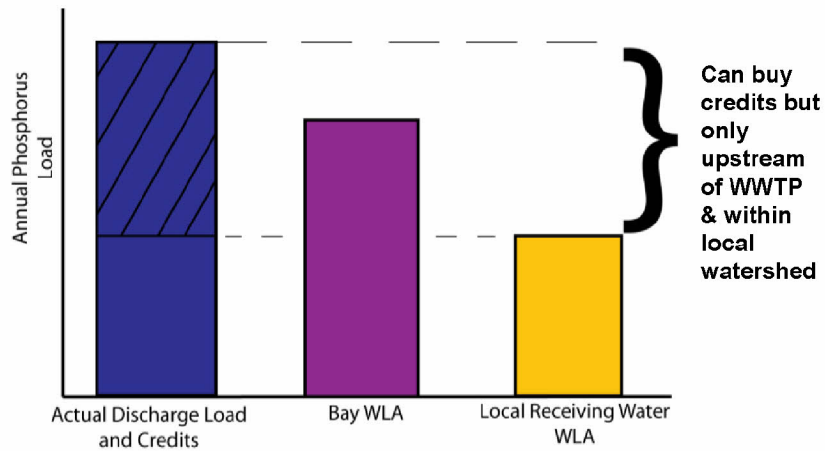
- Case 2 – The point source is an existing discharger and has a wasteload allocation under the Bay TMDL. A TMDL has not yet been implemented for the local impairment
- Case 3 - The point source is a new or expanding discharge that has no wasteload allocation under the Bay TMDL

For Case 1, the discharger should be allowed to purchase credits. The number of credits that could come from outside the watershed would depend on the subcase. The following excerpts from a WRI presentation graphically presents Case 1 examples dealing with phosphorus discharge and illustrate the constraints on the sources of credits that WRI recommends for each subcase.



Case 1a

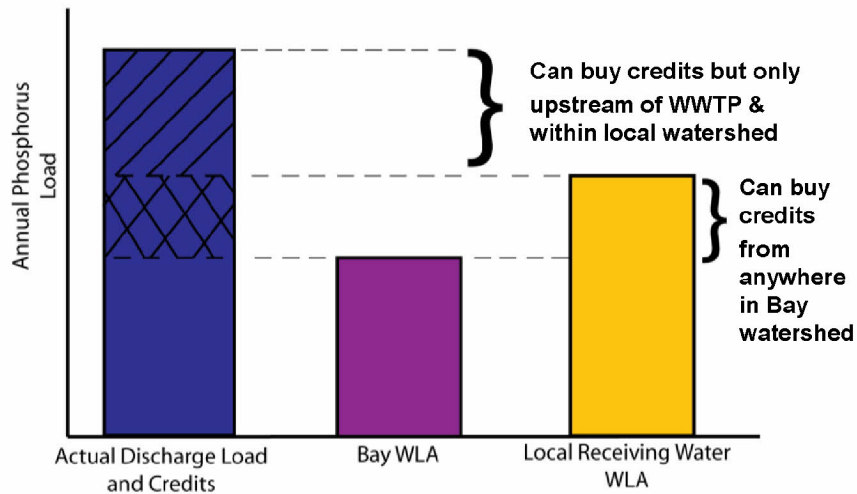
Phosphorus limit for local TMDL is *lower* than Bay TMDL limit



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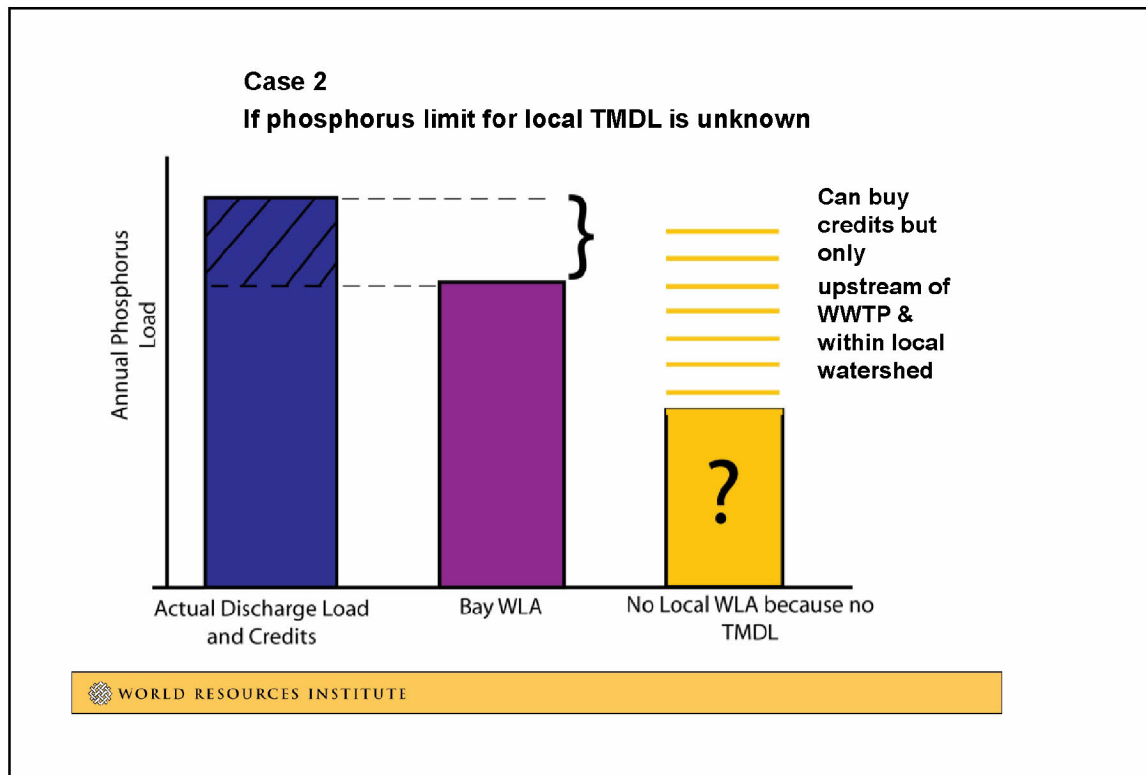
Case 1b

Phosphorus limit for local TMDL is *higher* than Bay TMDL limit



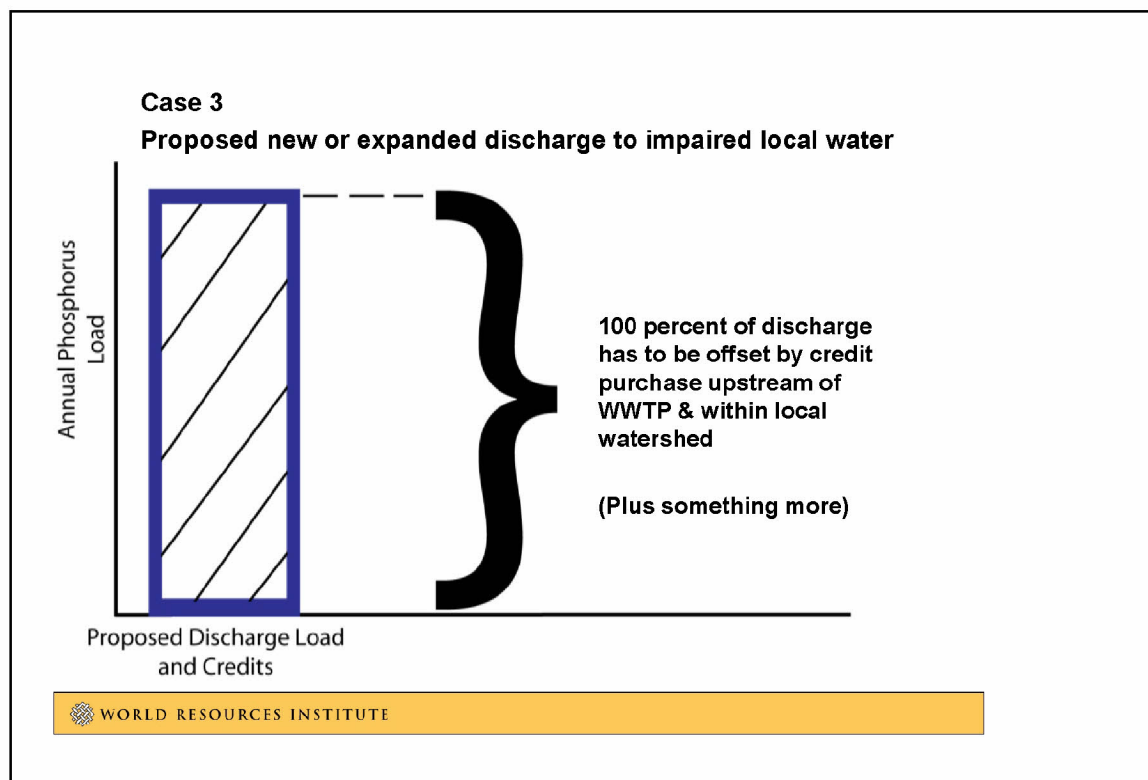
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In Case 2, the point source is an existing discharger and has a wasteload allocation under the Bay TMDL. A TMDL has not yet been implemented for the local impairment, hence the discharger does not yet know what its local wasteload allocation will be. Case 2 is directly addressed by EPA 2003 Trading Policy which states “EPA supports pre-TMDL trading in impaired waters to achieve progress towards or the attainment of water quality standards.” The following graph illustrates the Case 2 situation and WRI’s recommended constraints on the source of credits.



The point source is not likely to purchase credits to meet the local WLA because it does not yet know the local WLA. Purchasing credits to meet the Bay WLA makes progress toward meeting the local water quality goals, hence is consistent with the trading policy.

Case 3 involves a new or expanding discharge that has no wasteload allocation under the Bay TMDL. A TMDL has not yet been implemented for the local impairment. WRI recommends that credit purchase be allowed but that all credits must come from within the impaired watershed and upstream of the point source. To satisfy the trading policy requirement for “net progress” the point source would have to do something more than simply offset its discharges. Adding a retirement ratio to the trade would be one way of fulfilling this requirement.



8. *To what extent can “programmatic offsets” be used as an option for categories of nonpoint source load allocations instead of the site-by-site offset or trading approach? How should the minimum expectations for accounting for programmatic offsets or trades for the accountability and tracking system be defined? For example, should a jurisdiction’s nonpoint source sediment control program have allocations assigned to it? When an allocation is estimated to be exhausted, should the jurisdiction begin requiring offsets or trades?*

WRI is skeptical of programmatic offsets. If they are allowed, trading program rules must be in place to ensure that the programs being credited actually produce quantifiable and verifiable delivered load reductions.

9. *Will non-point sources be required to implement a minimum level of “best management practices” to be eligible to sell credits? If so, would this result in nonpoint sources exhausting their lowest cost options for reducing emissions, leaving only more expensive methods for use in generating credits? If credit prices do rise because only more expensive credit generation methods are available to nonpoint sources, how responsive will credit buyers be to the price increases?*

Nonpoint sources should be required to reduce their share of their sector’s load allocation before implementing practices to generate credits. Existing nutrient trading programs in the Bay watershed currently state whether nonpoint sources face performance standard or practice-based baseline requirements. While an interstate and interbasin nutrient trading program could result in

changes to how states establish baseline requirements, such requirements are needed and should be generally consistent throughout the watershed in the level of performance they produce.

If the baseline is practice-based, farmers will likely implement the required practice(s) and then implement additional practices to generate credits. If the baseline is a performance-standard, farmers could implement whatever practices they choose as long as they meet their share of the agriculture sector's load allocation. Farmers would likely implement low-cost practices first. However, their choice of which practices to implement will be affected by available cost-share funding. If an expensive practice becomes affordable because it can be subsidized by cost-share funds, the farmer could be more-inclined to use it to meet the performance standard.

Credit pricing is difficult to predict at this point. Price discovery will be affected by many factors, chief among them supply and demand. Some potential credit purchasers will be seeking to avoid very high costs (e.g. MS4s). Credit buyers are unlikely to be affected by slight increases in credit price. Poor trading program design itself could adversely affect pricing.

Credit Calculation Metrics

10. *Under what circumstances should/will offset loads or credits generated be required to be in an amount greater than the new or increased delivered load or credit used?*

WRI assumes that the question refers to requiring retirement ratios, net improvement ratios, or other types of ratios unrelated to delivered loads and equivalent water quality impacts. WRI does not object to such ratios being applied to trades as a sort of "water quality tax" but cautions that if they become too large, they could reduce the viability of trading and constrain the market. Given the critical role of trading in making the TMDL implementable, excessive ratios could actually be harmful to Bay restoration efforts.

Another type of ratio deserves mention. Reserve ratios put credit into a credit insurance pool. The insurance pool is a critical component in managing point-source risk. Since Clean Water Act legal liability cannot be transferred from the permitted credit purchaser to a nonpoint source supplier, point sources are very concerned about the possibility of credit defaults by unregulated suppliers. If credits could be purchased from a reliable insurance pool in the event of a default, point sources will be much less concerned about this risk. WRI supports the creation of the insurance pool and the use of a reserve ratio to supply it with credits.

11. *Is it appropriate to allow an offset or credit for load reductions already achieved (e.g., can credits be for practices implemented within a specific period)?*

This is a difficult question with many implications. A complete discussion is not possible within the context of TMDL comments. The only answer WRI could offer now is *possibly*. WRI urges EPA to seek input on this question, and others, in an ongoing process to develop trading program policy.

Certification of Credit and Offset Validity

12. *What is the correct approach to credit or offset validity certification? Should certifications be done annually? Can this be accomplished by third parties?*

EPA should be consistent with terminology used by the existing state trading programs. Credit certification is the process by which an entity wishing to sell credits submits an application to the appropriate regulatory agency. Verification is an annual inspection to verify that the credits are real and are being generated by load reductions as proposed in the application. The application should include, among other things, a description of the proposed quantity of credits to be generated, where and how they will be generated, the duration of the credit generation, and how applicable baseline requirements will be met. The regulatory agency should be a thorough review of the proposal to ensure that the proposal is valid in all respects. It can then certify the credits and they can be entered in the public trading registry. Once sold, an annual verification of the actual credit generation is required, generally through an onsite inspection. There is no *a priori* reason to preclude the possibility of third-party inspections.

Enforceability

13. *Under the CWA and EPA's trading policy, where an NPDES-permitted discharger is the purchaser of a credit or offset, but the credit or offset producer does not perform, the permittee remains obligated to meet the permit's water quality-based effluent limit and subject to potential enforcement for failure to do so. In addition to this enforcement safeguard, is it important to ensure there is a civilly enforceable agreement between buyer and seller? Discussion Draft – 8/6/10 8 14. Should the consequences of significant noncompliance by permittees include restriction from trading for a certain amount of time? What impact would this have on trades or offsets already in place?*

Credit transactions should be based on a civilly enforceable agreement between buyer and seller. An interstate and interbasin nutrient trading program could stipulate minimum requirements for such contracts, including:

- Purpose of the contract;
- Quantities of credits exchanged;
- Prices of credits exchanged;
- Duration of contract;
- Obligations of the seller;
 - Agreement to undertake specified actions to reduce pollutant loads
 - Agreement to properly maintain BMPs or other specified facilities
 - Agreement to allow regular inspections by buyer and/or third parties
 - Compliance with all federal, state, and local requirements
- Obligations of the buyer; and
- Provisions for violation.

In some trading programs, the reliance on private contracts has been augmented with regulatory sanctions against sellers of non-existent credits. For example, Michigan's trading rules stipulate

that credit generators are subject to three times the amount of compensatory damages if they sell bad or insufficient credits.

WRI advises against provisions that would make state or federal agencies parties to private contracts, or give them enforcement authority over such contracts. Such provisions could greatly reduce the number of entities willing to supply credits. Existing contract law is sufficient to protect all parties

Accountability and Tracking System

15. *An assumption herein is that offset or credit users are NPDES dischargers and that all offsets or trades must be documented in the NPDES permits. Must credit or offset generators who are NPDES dischargers also have offsets or trades recorded in their NPDES permit? The Trading Toolkit states that “credit sellers’ permits will include both the effluent limit that would apply without the trade and the effluent limit that applies with the trade.”*

WRI believes that the provisions included in the seller’s NPDES permit should depend on the nature of the proposed trade. Two cases come to mind:

- The trade could involve the permanent sale of WLA to another permit holder. In this case, the WLAs in both permits should be adjusted accordingly. “With and without trade” effluent limits would not be needed in the sellers permit, only the reduced WLA and possibly a statement in the fact sheet about why the WLA was reduced and by how much.
- The trade involves the sale of a certain number of credits per year for X years. In this case, the seller’s permit should reflect both trade and no-trade limits and the maximum number of credits that may be sold in a given year, if applicable.

16. *Nonpoint source participation is important to maximize the success of offsets and trades, yet integrity of transactions involving nonpoint sources will be challenging, particularly in cases of nonpoint source-only transactions. Are there additional elements or standards that should be considered for ensuring the integrity of such transactions?*

There are many additional elements and standards that must be included in a trading program involving nonpoint sources. As with Question 11, a complete discussion is not possible within the context of TMDL comments. WRI urges EPA to seek input on this question in an ongoing process to develop trading program policy.